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(56) Documents Cited

GB 2333561 A
DE 003306256 A

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INT CL⁷ **F01C 1/00 3/00 3/02 , F04C 2/00 3/00 3/02**
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(54) Abstract Title

An engine having a doughnut shaped cylinder

(57) A rotary engine in which a piston 1 sweeps through a toroidal or annular cylinder 5, has a valve 2 in the form of a rotating plate with a cut out section which allows the piston to pass through the plate. The engine has an inlet 3 and an outlet 4 on opposite sides of the valve.

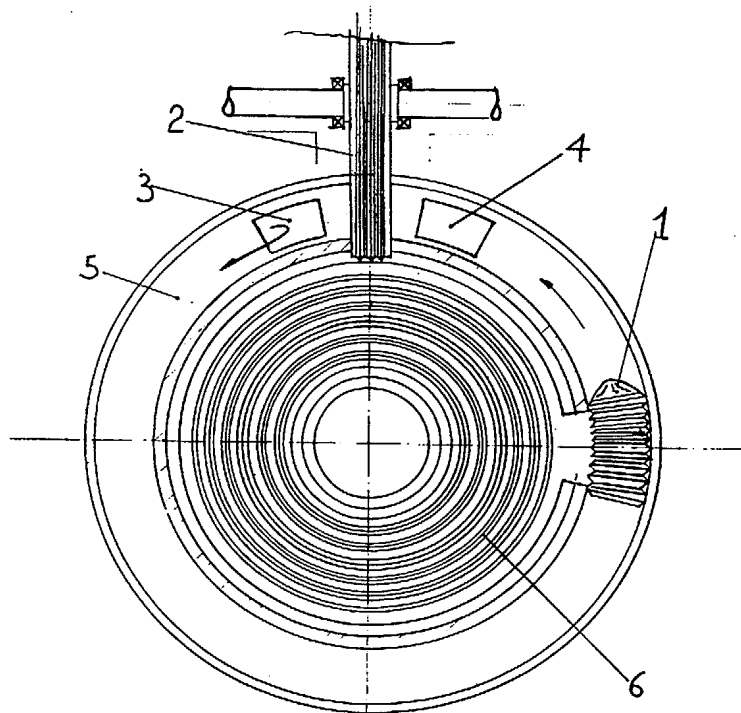


FIGURE 1

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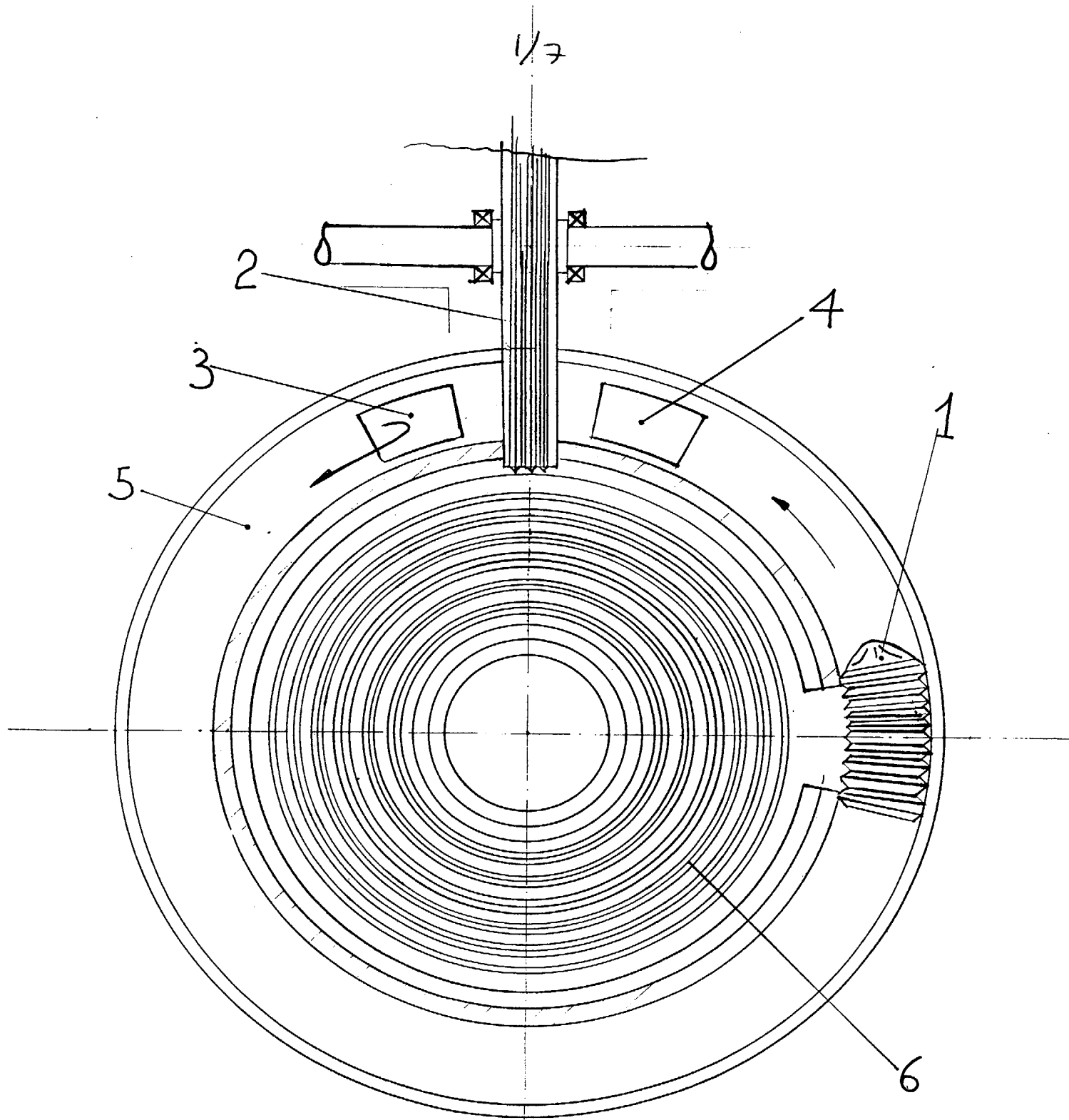


FIGURE 1

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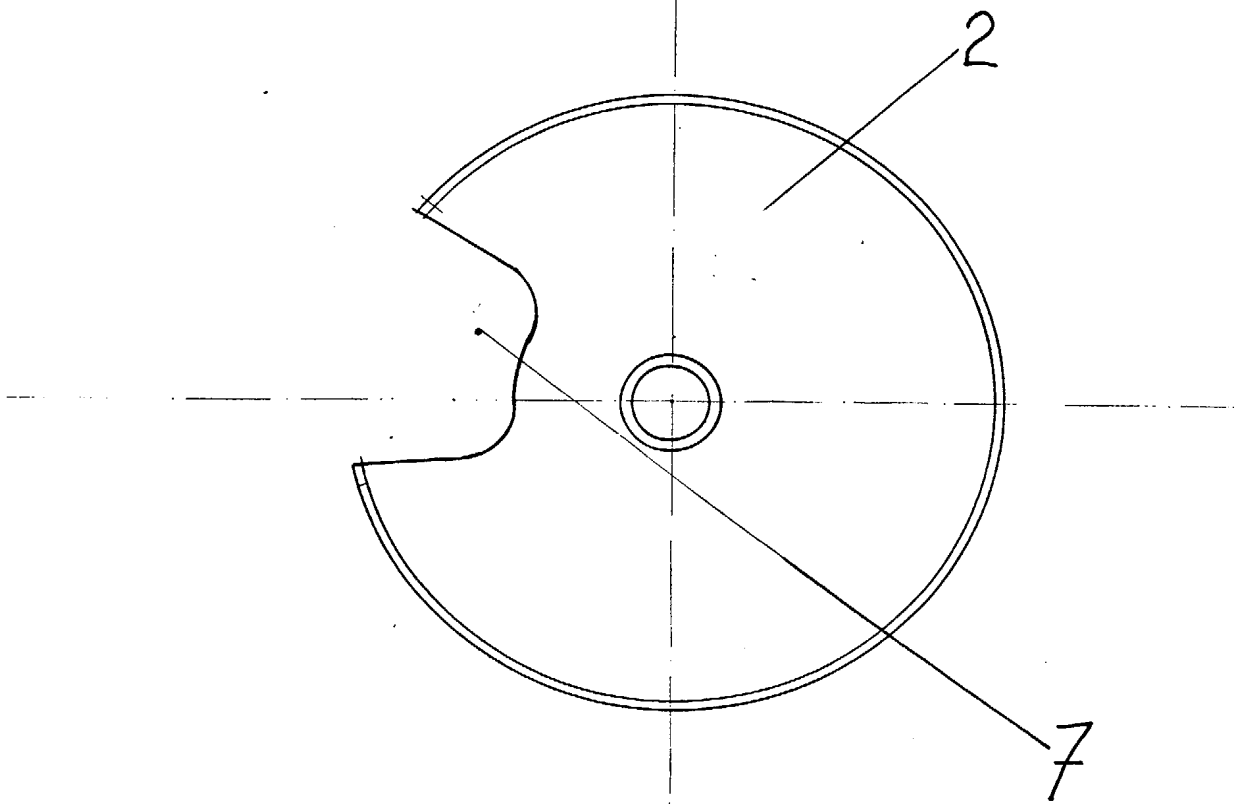


FIGURE 2

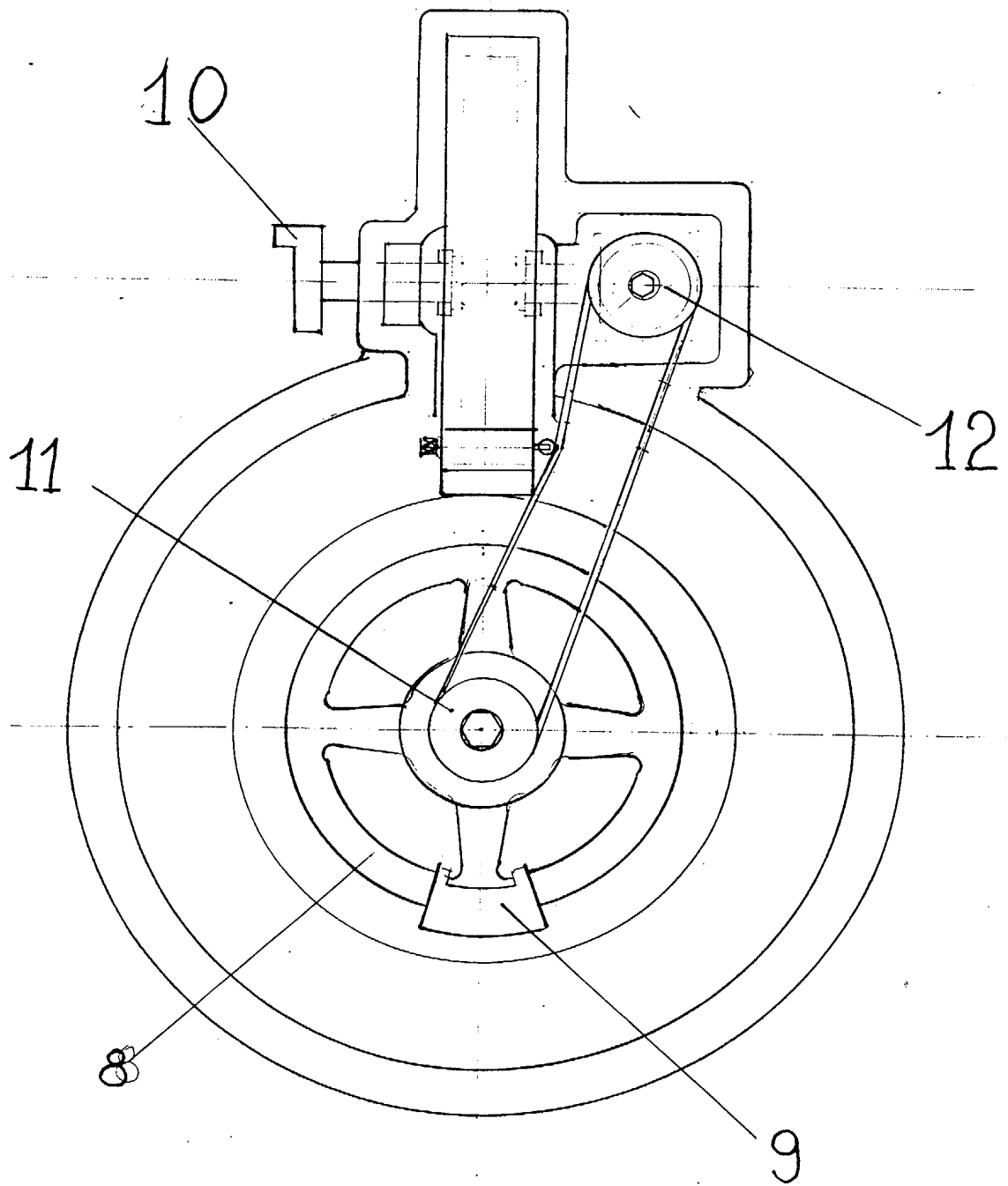


FIGURE N 3

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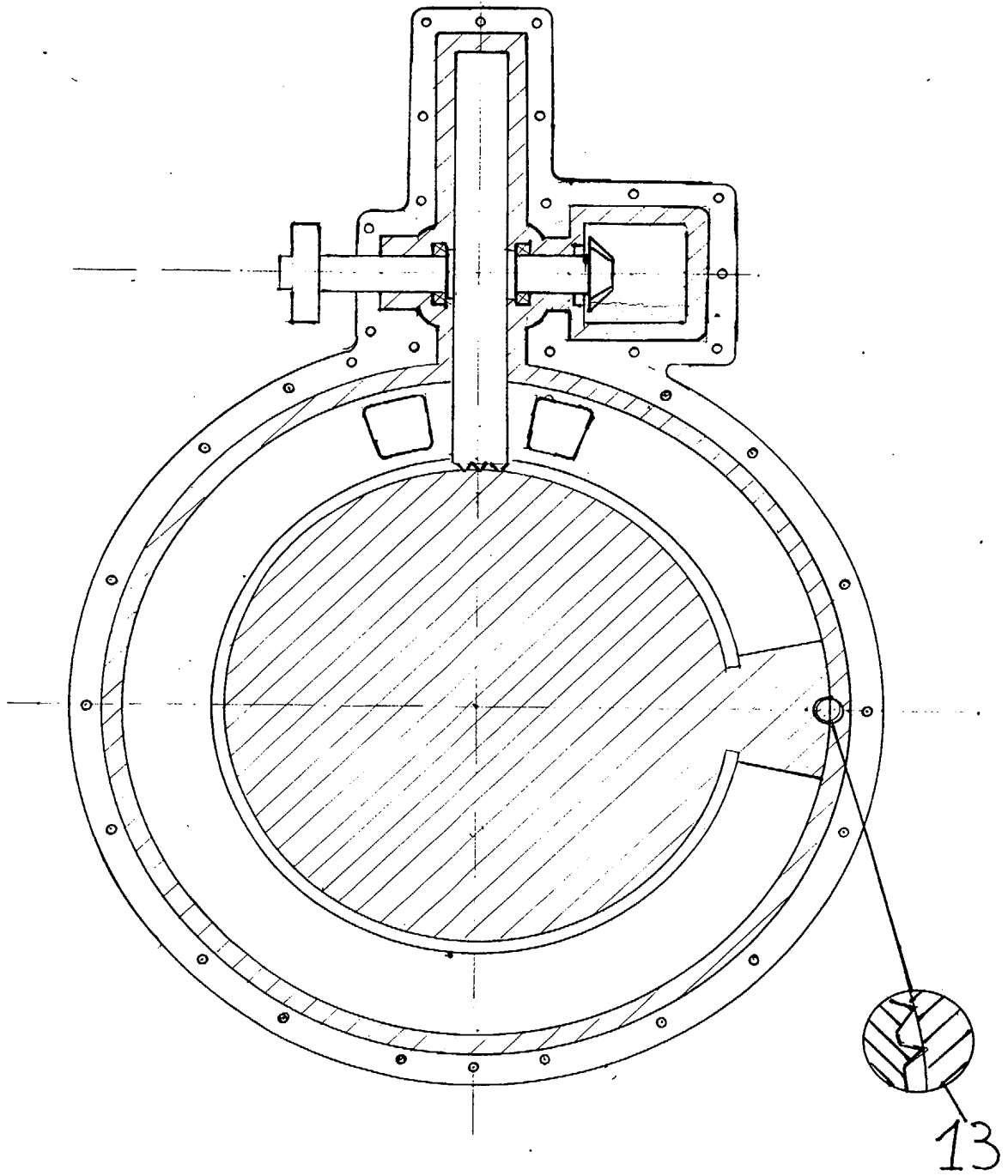


FIGURE N4

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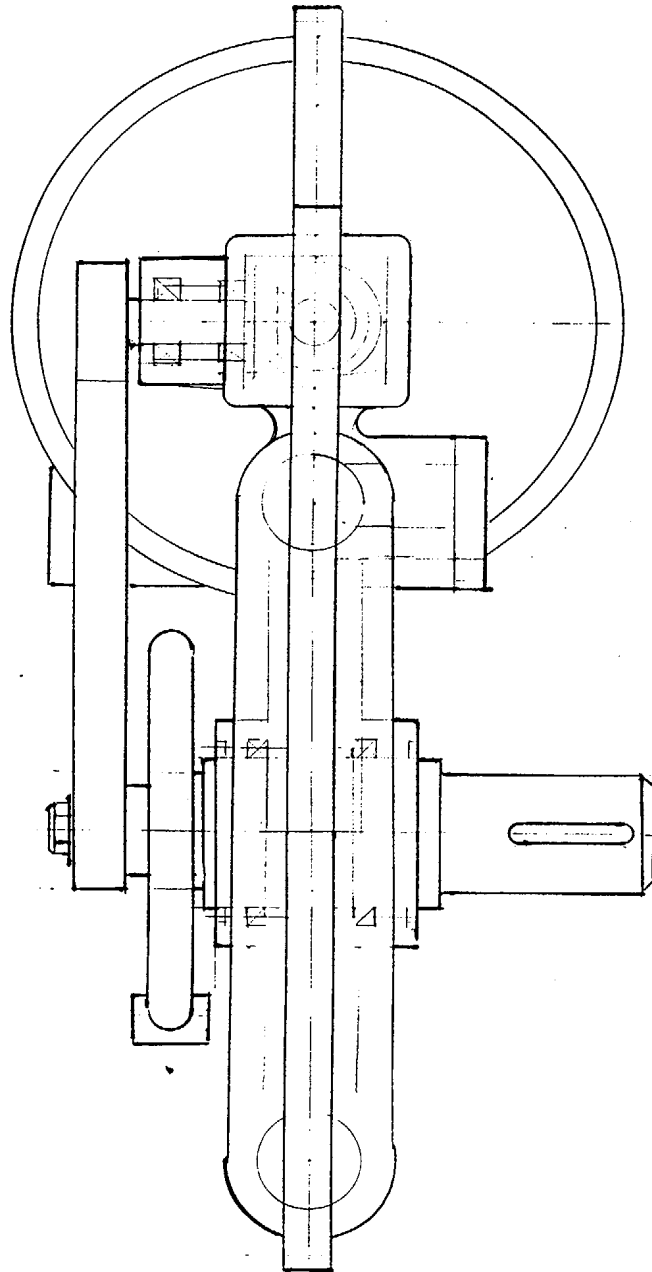


FIGURE N 5

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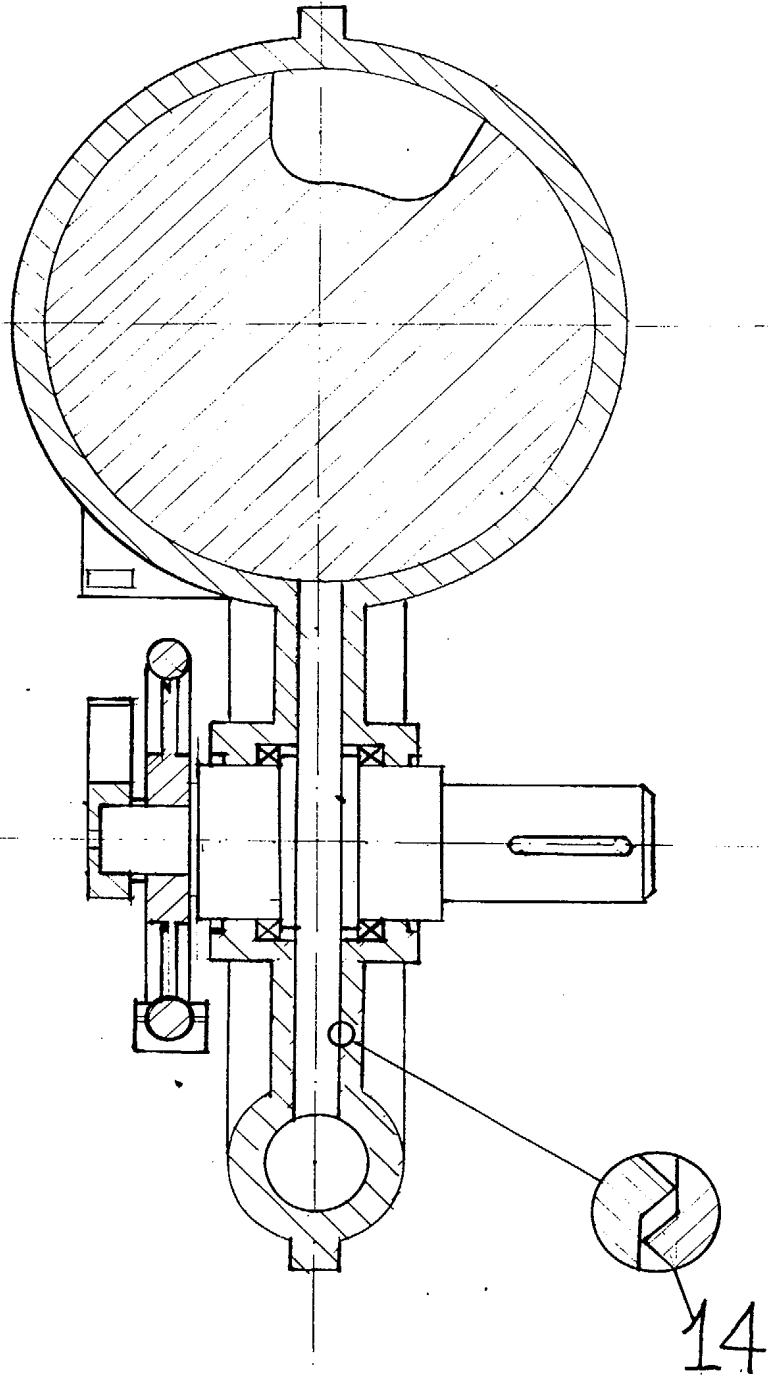


FIGURE N°6

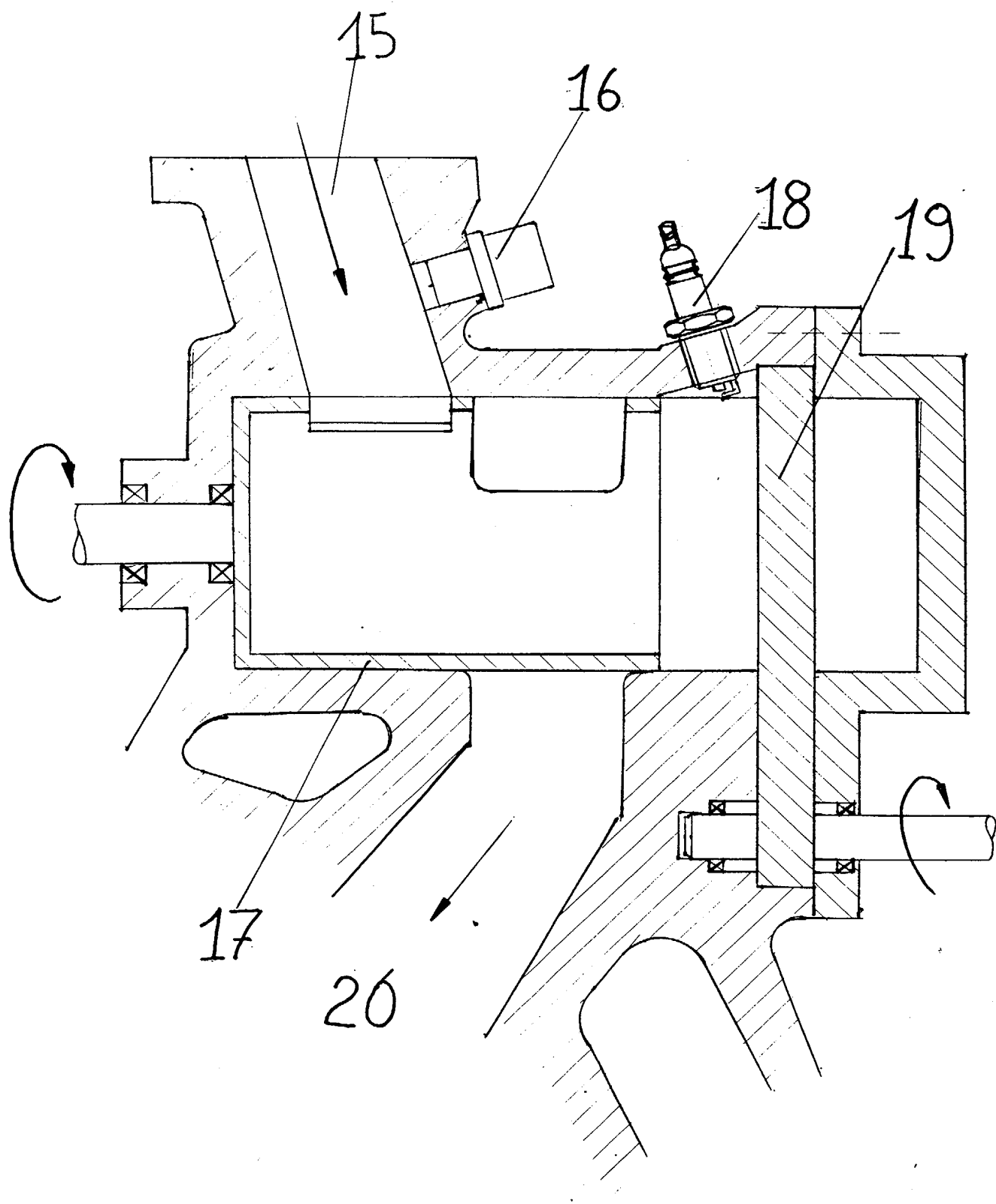


FIGURE N° 7

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"The DOUGHNUT ENGINE"
or
"Nucleus Pressure Annular Circular Engine"

The invention is a new kind of engine; use combustion in order to obtain mechanical energy.

In this engine are completely absent the inertial forces of prime and second degree, and the useful stroke is very long near 330 degree of the crankshaft.

Other characteristics are the capability to use a big range of combustibles, including explosive with easy conversion and the possibility to obtain engine with variable capacity.

This kind of engine will find application in every human activity that requests mechanical energy including aerospace.

The main principle of this engine is to use a rotating piston and connecting rod where the sealing is obtained with labyrinth machinery.

In the following figure number 1,2,3,4,5,6,7 of the accompanying drawing are described components and simply assembly of the invention.

FIGURE 1 Shows a scheme where is explained the functionality of the engine

FIGURE 2 shows a front view of the rotating valve

FIGURE 3 shows a front view of a elementary engine that use vapour of water

FIGURE 4 shows a section of the front view of the previous engine

FIGURE 5 shows a lateral view of the engine

FIGURE 6 shows a section of lateral view

FIGURE 7 shows an example of combustion chamber employed for the combustion of petrol.

The figure N 1 shows a scheme where is explained the functionality of a simple water vapour engine.

The gas in pressure enter in the circular cylinder from the intake manifold (3) here in finds the expansion room (5) and transfer his energy to the piston (1) that consequently moves with the circular motion inside the cylinder.

A rotating valve (2) permit to keep close the expand room (5) until the piston comes back to the upper point.

The valve is showed in the figure number 2, IT has the same number of revolutions of the piston and is fitted synchronized with it.

When the piston arrives to the upper point, the valve opens a space (7) and permit to the piston to pass over.

When the piston has pass the valve the gas used in the previous cycle goes out from the exhaust manifold (4) and the motion of the piston, in the second cycle, will clean the cylinder for the rest of the gas remained in the cylinder.

The new cycle of the engine will start when the piston pass the valve (2) and during the motion open the intake window (3).

In this condition the valve (2) is close and the pressurized gas enter in the room between the piston and the valve, producing the necessary force to push the piston and produce power.

The sealing of the gas is obtained with a labyrinth machinery (6), typical of the aeronautic engine, with high precision in the machinery tolerance in the part employed in the motion.

The figure n 3 shows the front view of the engine.

Here we can see the flywheel (8) with the equilibration support (9) necessary to regulate the motion and remove the vibration of the crankshaft.

The same functionality is given to the second flywheel (10) that removes vibration created by the valve.

The primary pulley (11) transfers to the secondary pulley (12) the motion to the valve using a transmission belt and two conic gears.

The figure n 4 shows the front section of the engine, here in is showed the details of construction of the piston (13) and the valve assembly.

The figure n 6 shows a section of lateral view where is in evidence the system used for the sealing (14) and the particular form of the valve.

The figure n 7 shows a system of combustion chamber in order to use petrol combustibile.

In this system an external compressor provide to pump the necessary air inside the combustion chamber thought the intake manifold (15).

An injector (16) injects petrol in the manifold and when a rotating valve (17) open the combustion chamber the mixture enter in the chamber.

The rotating valve (17) in the second cycle close the intake manifold (15) and a spark plug (18) gives energy to start the combustion.

After the sparking the rotating valve open the exhaust valve and provide the gas to expand into the circular cylinder (20).

An external command can be give to move an internal separator sector(19) in order to increase the volume of the combustion chamber and increase the combustion capacity producing more energy.

CLAIMS

- 1) The doughnut engine is an engine that uses a rotating piston and connecting -rod in a circular cylinder in order to obtain mechanical power using various combustibles.
- 2) the doughnut engine as claimed in claim 1 where rotating piston means that the motion of the piston is circular into a circular cylinder.
- 3) the doughnut engine is substantially as here in described and illustrated in the accompanying drawings.



INVESTOR IN PEOPLE

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Claims searched: 1 - 3

Examiner: David Hotchkiss
Date of search: 29 May 2002

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.7): F01C (1/00, 3/00, 3/02); F04C (2/00, 3/00, 3/02)

Other: Online: WPI; EPODOC; JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2333561 A (ARCHER J E) Whole document	1 & 2
X	GB 1145681 A (FAIRBAIRN G A) Whole document	1 & 2
X	DE 3306256 (RATH, WALTHER) English abstract and especially figures 8, 9 & 10	1 & 2

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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